

**REMARKS**

This is a full and timely response to the outstanding Advisory Action mailed July 28, 2008. Claims 1, 4, 13, 15-16, 18-19, and 21 have been amended, and claims 2-3, 7, 9-11, 14, 17, and 20 have been canceled. The Examiner is thanked for the thorough examination of the present application. Upon entry of this response, claims 1, 4-6, 8, 12-13, 15-16, 18-19, and 21 remain pending in the present application.

I. Present Status of Patent Application

A. Claims 1-21

Claims 1-21 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,263,048 issued to Nelson (hereafter "Nelson") in view of U.S. Patent No. 7149,190 issued to Li et al. (hereafter "Li").

For at least the reasons set forth below, Applicants respectfully submit that the rejection is rendered moot by amendment submitted herewith and submit the following remarks.

Independent claim 1 recites:

1. A method for dynamic bin allocation, the method comprising:  
obtaining link performance data based on a plurality of test transmissions between two network elements, *wherein the plurality of test transmissions comprises an upstream transmission, a downstream transmission, and a full-duplex transmission*, the plurality of test transmissions *performed in every channel of a discrete multi-tone (DMT) communications system and each performed at a maximum transmission power*;

determining a desired transmission scheme for the discrete multi-tone communications system, wherein each channel of the discrete multi-tone communications system is designated a transmission mode based on the link performance data, wherein the link performance data comprises at least one of a data rate, an error rate, a signal-to-interference ratio, and a signal-to-noise ratio and *the*

*transmission mode is selected from an upstream mode, a downstream mode, and a full-duplex mode; and*

*assigning the desired transmission scheme to a connection between the two network elements in the discrete multi-tone communications system.*

(Emphasis added).

Applicant respectfully submits that claim 1 is patentably distinct from the cited art for at least the reason that the cited art does not disclose the features emphasized above.

For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements/features of the claim at issue.

See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

The Office Action mailed April 16, 2008 ("the Office Action") as well as the Advisory Action mailed July 30, 2008 cite *Li* in an attempt to alleviate the deficiencies of the *Nelson* reference. Applicants respectfully submit that the cited references fail to disclose the bin allocation system of an embodiment of the pending claims, as amended. To support the rejection of the Office Action the Advisory Action states that *Li* discloses that "a fundamental aspect of MDT *sic* (discrete multi-tone) modulation is the partitioning of the available bandwidth into frequency sub bands or bins." Applicants acknowledge that discrete multi-tone (DMT) communications systems involve partitioning of available bandwidth into bins. However, the cited *Li* and *Nelson* references fail to disclose *allocating and/or designating a transmission mode* to each of said bins. As amended, a transmission mode of claim 1 is selected from an upstream mode, a downstream mode, and a full-duplex mode.

In addition, the cited references fail to disclose performing ***each of a plurality of test transmissions*** at a ***maximum transmission power*** in ***each channel*** and/or bin of a discrete multi-tone communications system in order to obtain link performance data to allocate one of the above noted transmission modes to each bin in a DMT system. In reference to previously presented claim 11, the Office Action stated that *Nelson* discloses above noted plurality of test transmissions performed at a maximum transmission power. However, the cited portions of the reference (col. 7, lines 34-38) do not disclose such a limitation. In contrast, the cited portion of the *Nelson* reference discloses a *minimum* multi-tone power ratio (MTPR) in accordance with the disclosure therein, as the reference states that "notches need to have a depth of at least 65 dB." *Nelson*, col. 7, line 38. (*Emphasis added*).

As the cited combination of references does not disclose, teach, or suggest, either implicitly or explicitly, all the elements of claim 1 as amended, the rejection should be withdrawn for at least that reason. Further, for at least the reason that independent claim 1 is allowable over the cited references of record, dependent claims 4-5, 6, 8, and 12 (which depend from independent claim 1) are allowable as a matter of law for at least the reason that dependent claims 4-5, 6, 8, and 12 contain all the features of independent claim 1. See *Minnesota Mining and Manufacturing Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002) *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 54 U.S.P.Q.2d 1086 (Fed. Cir. 2000); *Wahpeton Canvas Co. v. Frontier Inc.*, 870 F.2d 1546, 10 U.S.P.Q.2d 1201 (Fed. Cir. 1989). Therefore, the rejection of claims 4-5, 6, 8, and 12 should be withdrawn and the claims allowed.

Independent claim 13 recites:

13. A system for dynamic bin allocation, the system comprising a first network element and a second network element, wherein each of the first network element and the second network element comprises at least a processor module and a transceiver module that are coordinated to obtain link performance data based on a plurality of test transmissions between the first network element and the second network element, **wherein the plurality of test transmissions comprises an upstream transmission, a downstream transmission, and a full-duplex transmission**, the plurality of test transmissions **performed in every channel of a discrete multi-tone (DMT) communications system and each performed at a maximum transmission power**; determine a desired transmission scheme for the discrete multi-tone communications system, wherein each channel of the discrete multi-tone communications system is designated a transmission mode based on the link performance data, wherein the link performance data comprises at least one of a data rate, an error rate, a signal-to-interference ratio, and a signal-to-noise ratio and **the transmission mode is selected from an upstream mode, a downstream mode, and a full-duplex mode**; and assign the desired transmission scheme to a connection between the two network elements in the discrete multi-tone communications system.

(Emphasis added).

Applicant respectfully submits that claim 13 is patentably distinct from the cited art for at least the reason that the cited art does not disclose the features emphasized above. For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements/features of the claim at issue. See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

The Office Action mailed April 16, 2008 ("the Office Action") as well as the Advisory Action mailed July 30, 2008 cite *Li* in an attempt to alleviate the deficiencies of the *Nelson* reference. Applicants respectfully submit that the cited references fail to

disclose the bin allocation system of an embodiment of the pending claims, as amended. To support the rejection of the Office Action the Advisory Action states that *Li* discloses that "a fundamental aspect of MDT *sic* (discrete multi-tone) modulation is the partitioning of the available bandwidth into frequency sub bands or bins." Applicants acknowledge that discrete multi-tone (DMT) communications systems involve partitioning of available bandwidth into bins. However, the cited *Li* and *Nelson* references fail to disclose **allocating and/or designating a transmission mode** to each of said bins. As amended, a transmission mode of claim 13 is selected from an upstream mode, a downstream mode, and a full-duplex mode.

In addition, the cited references fail to disclose performing ***each of a plurality of test transmissions*** at a ***maximum transmission power*** in ***each channel*** and/or bin of a discrete multi-tone communications system in order to obtain link performance data to allocate one of the above noted transmission modes to each bin in a DMT system. In reference to previously presented claim 11, the Office Action stated that *Nelson* discloses above noted plurality of test transmissions performed at a maximum transmission power. However, the cited portions of the reference (col. 7, lines 34-38) do not disclose such a limitation. In contrast, the cited portion of the *Nelson* reference discloses a ***minimum*** multi-tone power ratio (MTPR) in accordance with the disclosure therein, as the reference states that "notches need to have a depth of **at least** 65 dB." *Nelson*, col. 7, line 38.  
*(Emphasis added).*

As the cited combination of references does not disclose, teach, or suggest, either implicitly or explicitly, all the elements of claim 13 as amended, the rejection should be withdrawn for at least that reason. Further, for at least the reason that

independent claim 13 is allowable over the cited references of record, dependent claim 15 (which depends from independent claim 13) is allowable as a matter of law for at least the reason that dependent claim 15 contains all the features of independent claim 13. See *Minnesota Mining and Manufacturing Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002) *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 54 U.S.P.Q.2d 1086 (Fed. Cir. 2000); *Wahpeton Canvas Co. v. Frontier Inc.*, 870 F.2d 1546, 10 U.S.P.Q.2d 1201 (Fed. Cir. 1989). Therefore, the rejection of claim 15 should be withdrawn and the claims allowed.

**Independent claim 16 recites:**

16. A system for dynamic bin allocation, the system comprising:
  - means for obtaining link performance data based on a plurality of test transmissions between two network elements, *wherein the plurality of test transmissions comprises an upstream transmission, a downstream transmission, and a full-duplex transmission*, the plurality of test transmissions *performed in every channel of a discrete multi-tone (DMT) communications system and each performed at a maximum transmission power*,
  - means for determining a desired transmission scheme for the discrete multi-tone communications system, wherein each channel of the discrete multi-tone communications system is designated a transmission mode based on the link performance data, wherein the link performance data comprises at least one of a data rate, an error rate, a signal-to-interference ratio, and a signal-to-noise ratio and *the transmission mode is selected from an upstream mode, a downstream mode, and a full-duplex mode*; and
  - means for assigning the desired transmission scheme to a connection between the two network elements in the discrete multi-tone communications system.

(Emphasis added).

Applicant respectfully submits that claim 16 is patentably distinct from the cited art for at least the reason that the cited art does not disclose the features emphasized above. For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of

references must disclose, teach, or suggest all elements/features of the claim at issue. See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

The Office Action mailed April 16, 2008 ("the Office Action") as well as the Advisory Action mailed July 30, 2008 cite *Li* in an attempt to alleviate the deficiencies of the *Nelson* reference. Applicant respectfully submit that the cited references fail to disclose the bin allocation system of an embodiment of the pending claims, as amended. To support the rejection of the Office Action the Advisory Action states that *Li* discloses that "a fundamental aspect of MDT *sic* (discrete multi-tone) modulation is the partitioning of the available bandwidth into frequency sub bands or bins." Applicants acknowledge that discrete multi-tone (DMT) communications systems involve partitioning of available bandwidth into bins. However, the cited *Li* and *Nelson* references fail to disclose allocating and/or designating a transmission mode to each of said bins. As amended, a transmission mode of claim 16 is selected from an upstream mode, a downstream mode, and a full-duplex mode.

In addition, the cited references fail to disclose performing each of a plurality of test transmissions at a maximum transmission power in each channel and/or bin of a discrete multi-tone communications system in order to obtain link performance data to allocate one of the above noted transmission modes to each bin in a DMT system. In reference to previously presented claim 11, the Office Action stated that *Nelson* discloses above noted plurality of test transmissions performed at a maximum transmission power. However, the cited portions of the reference (col. 7, lines 34-38) do not disclose such a limitation. In contrast, the cited portion of the *Nelson* reference discloses a minimum

multi-tone power ratio (MTPR) in accordance with the disclosure therein, as the reference states that "notches need to have a depth of at least 65 dB." Nelson, col. 7, line 38.  
*(Emphasis added).*

As the cited combination of references does not disclose, teach, or suggest, either implicitly or explicitly, all the elements of claim 1 as amended, the rejection should be withdrawn for at least that reason. Further, for at least the reason that independent claim 1 is allowable over the cited references of record, dependent claim 18 (which depends from independent claim 16) is allowable as a matter of law for at least the reason that dependent claim 18 contains all the features of independent claim 1. See Minnesota Mining and Manufacturing Co. v. Chemque, Inc., 303 F.3d 1294, 1299 (Fed. Cir. 2002) Jeneric/Pentron, Inc. v. Dillon Co., 205 F.3d 1377, 54 U.S.P.Q.2d 1086 (Fed. Cir. 2000); Wahpeton Canvas Co. v. Frontier Inc., 870 F.2d 1546, 10 U.S.P.Q.2d 1201 (Fed. Cir. 1989). Therefore, the rejection of claim 18 should be withdrawn and the claims allowed.

**Independent claim 19 recites:**

19. A computer readable medium having code for causing a processor to perform dynamic bin allocation, the computer readable medium comprising:

code adapted to obtain link performance data based on a plurality of test transmissions between the first network element and the second network element, *wherein the plurality of test transmissions comprises an upstream transmission, a downstream transmission, and a full-duplex transmission*, the plurality of test transmissions *performed in every channel of a discrete multi-tone (DMT) communications system and each performed at a maximum transmission power*,

code adapted to determine a desired transmission scheme for the discrete multi-tone communications system, wherein each channel of the discrete multi-tone communications system is designated a transmission mode based on the link performance data, wherein the link performance data comprises at least one of a data rate, an error rate, a

signal-to-interference ratio, and a signal-to-noise ratio and ***the transmission mode is selected from an upstream mode, a downstream mode, and a full-duplex mode;*** and

code adapted to assign the desired transmission scheme to a connection between the two network elements in the discrete multi-tone communications system.

(Emphasis added).

Applicant respectfully submits that claim 19 is patentably distinct from the cited art for at least the reason that the cited art does not disclose the features emphasized above. For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements/features of the claim at issue. See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

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In addition, the cited references fail to disclose performing ***each of a plurality of test transmissions*** at a ***maximum transmission power*** in ***each channel*** and/or bin of a discrete multi-tone communications system in order to obtain link performance data to allocate one of the above noted transmission modes to each bin in a DMT system. In reference to previously presented claim 11, the Office Action stated that *Nelson* discloses above noted plurality of test transmissions performed at a maximum transmission power. However, the cited portions of the reference (col. 7, lines 34-38) do not disclose such a limitation. In contrast, the cited portion of the *Nelson* reference discloses a *minimum* multi-tone power ratio (MTPR) in accordance with the disclosure therein, as the reference states that "notches need to have a depth of at least 65 dB." *Nelson*, col. 7, line 38. (*Emphasis added*).

As the cited combination of references does not disclose, teach, or suggest, either implicitly or explicitly, all the elements of claim 19 as amended, the rejection should be withdrawn for at least that reason. Further, for at least the reason that independent claim 19 is allowable over the cited references of record, dependent claim 21 (which depends from independent claim 19) are allowable as a matter of law for at least the reason that dependent claim 21 contains all the features of independent claim 19. See *Minnesota Mining and Manufacturing Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002); *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 54 U.S.P.Q.2d 1086 (Fed. Cir. 2000); *Wahpeton Canvas Co. v. Frontier Inc.*, 870 F.2d 1546, 10 U.S.P.Q.2d 1201 (Fed. Cir. 1989). Therefore, the rejection of claim 21 should be withdrawn and the claims allowed.

II.      Miscellaneous Issues

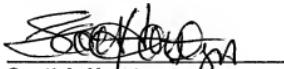
Any other statements in the Office Action that are not explicitly addressed herein are not intended to be admitted. In addition, any and all findings of inherency are traversed as not having been shown to be necessarily present. Furthermore, any and all findings of well-known art and official notice, or statements interpreted similarly, should not be considered well known for the particular and specific reasons that the claimed combinations are too complex to support such conclusions and because the Office Action does not include specific findings predicated on sound technical and scientific reasoning to support such conclusions.

**CONCLUSION**

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the now pending claims 1, 4-6, 8, 12-13, 15-16, 18-19, and 21 are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

It is believed that no extensions of time or fees for net addition of claims are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to deposit account No. 50-0835.

Respectfully submitted,



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Scott A. Horstemeyer  
Reg. No. 34,183

THOMAS, KAYDEN, HORSTEMEYER  
& RISLEY, L.L.P.  
600 Galleria Parkway SE  
Suite 1500  
Atlanta, Georgia 30339  
(770) 933-9500